

CONT
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44. (New) An apparatus as in claim 43, wherein reallocating the DSP resources between each of the DSP groups by the DSP resource manager, is performed as necessary, each time a call is activated or deactivated.

REMARKS

Reconsideration of this application as amended is respectfully requested.

Claims 1, 4, 6, 12, 15, and 16 stand rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,104,721 of Hsu (Hsu). Claims 2, 3, 5, and 13-14 stand rejected under 35 U.S.C. §103(a) as being obvious under U.S. Patent No. 6,104,721 of Hsu (Hsu) in view of U.S. Patent No. 5,452,306 of Turudic et al (Turudic). Claims 22-24 stand rejected under 35 U.S.C. §103(a) as being obvious under U.S. Patent No. 6,104,721 of Hsu (Hsu) in view of U.S. Patent No. 5,748,468 of Notenboom et al (Notenboom). Claims 7-11, 17-21, and 25-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 24 has been cancelled. New claims 35 through 44 have been added. Claims 22 and 25 have been amended. Claims 1-21, 23, and 26-34 are unchanged.

It is respectfully submitted that the amended claims 22 and 25 and new claims 35 through 44 do not add new matter.

Claims 1, 4, 6, 12, 15, and 16 stand rejected under 35 U.S.C. §102(e) as being clearly anticipated by U.S. Patent No. 6,104,721 of Hsu (Hsu).

The Examiner has rejected claims 1, 4, 6, 12, 15, and 16 under 35 U.S.C. §102 as being unpatentable over Hsu. The Examiner has stated that

Hsu teaches a system, comprising a digital signal processing (DSP) resource manager (column 6, lines 63-65) configured to ensure DSP availability for each of a number of channels as individual ones of the channels are activated or deactivated using figure 2.

(p. 2 Office Action 11/08/00).

The cited passage in Hsu states that

Resource controller 114 includes a mapping resource control (MRC) table 115 for managing processing resources of processing bank 112.

(Hsu Col. 6, lines 63-65).

Applicants respectfully submit, however that claims 1, 4, 6, 12, 15, and 16 are not anticipated under 35 U.S.C. §102 by Hsu. Claims 1, 4, 6, 12, 15, and 16 include the limitations

a digital signal processing (DSP) resource manager configured to ensure DSP availability for each of a number of channels as individual ones of said channels are activated or deactivated.

(Claim 1) (emphasis added).

managing a digital signal processing (DSP) system to ensure DSP availability for each of a number of channels as individual ones of said channels are activated or deactivated.

(Claim 12) (emphasis added).

In contrast, Hsu does not disclose configuring to ensure DSP availability for each of a number of channels as individual ones of said channels are activated or deactivated. Hsu discloses that

Provided that the currently available processing power is not sufficient for servicing the incoming call, processing proceeds to step 248 in which the controller rejects the call setup request. Provided that the currently

available processing power is sufficient for servicing the incoming call setup request, processing proceeds to step 250 in which the controller selects the proper processor or plurality of processors from processing bank 112 (FIG. 2) to service the incoming service call.

(Hsu Col. 13, lines 9-18) (emphasis added).

In other words, Hsu uses the controller to look for processor availability in the mapping resource control, rejecting channel requests when no processing power is unavailable. In contrast, Claims 1 and 12 refer to ensuring DSP availability for each of a number of channels. Given that claims 2-11 depend from claim 1 and claims 13-21 depend from claim 12, applicants submit that claims 4, 6, 15, and 16 are not anticipated under 35 U.S.C. §102 by the reference cited by the Examiner, for at least these reasons.

The Examiner has rejected claims 2, 3, 5, and 13-14 under 35 U.S.C. §103 as being unpatentable over Hsu in view of Turudic. The Examiner has stated that

Regarding claim 2,13, Hsu teaches a system wherein various numbers of the channels are in a carrier system as shown in figure 2. Hsu fails to disclose a system wherein various numbers of the channels are grouped together in a carrier system. However, a system wherein various numbers of the channels are grouped together are well known in the art. For example, Turudic teaches a system wherein various numbers of the channels are grouped in a carrier system (column 11, lines 10-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Turudic's method into Hsu's method with the motivation being to provide bandwidth according to request.

Regarding claim 3 and 14, the combination of Hsu and Turudic discloses a system wherein the carrier system is comprises of T1 lines (column 5, lines 30-33 of Hsu).

Regarding claim 5, Hsu teaches a system wherein the channels comprises voice channels (column 5, lines 43-44).

(p. 3 Office Action 11/08/00).

Claims 2, 3, 5, and 13-14 include all limitations disclosed in independent claims 1 and 12, including ensuring DSP availability for each of a number of channels as individual ones of said channels are activated or deactivated. It is submitted Turudic does not teach or suggest a combination with Hsu, nor does Hsu teach or suggest a combination with Turudic. It is further submitted that combining Turudic with Hsu is impermissible hindsight based on applicant's own disclosure. Even if Turudic and Hsu were combined, the combination would still lack the element of ensuring DSP availability for each of a number of channels as individual ones of said channels are activated or deactivated. Therefore, claims 2, 3, 5, and 13-14 are not obvious under 35 U.S.C. §102 by the references cited by the Examiner, for at least these reasons.

Claims 22-24 stand rejected under 35 U.S.C. §103(a) as being obvious under U.S. Patent No. 6,104,721 of Hsu (Hsu) in view of U.S. Patent No. 5,748,468 of Notenboom et al (Notenboom). Claim 22 has been amended to contain the following limitation:

a DSP resource manager configured to allocate the DSP resources among DSP resource groups according to requirements of a plurality of channels utilizing the DSP resources, allocating sufficient DSP resources to one of the DSP resource groups to process all of the plurality of channels.

(Claim 22) (emphasis added).

Hsu does not disclose allocating sufficient DSP resources to one of the DSP resource groups to process all of the plurality of channels. As stated previously, Hsu states that

Provided that the currently available processing power is not sufficient for servicing the incoming call, processing proceeds to step 248 in which the controller rejects the call setup request. Provided that the currently available processing power is sufficient for servicing the incoming call setup request, processing proceeds to step 250 in which the controller

selects the proper processor or plurality of processors from processing bank 112 (FIG. 2) to service the incoming service call.

(Hsu Col. 13, lines 9-18).

It is submitted Notenboom does not teach or suggest a combination with Hsu, nor does Hsu teach or suggest a combination with Notenboom. It is further submitted that combining Notenboom with Hsu is impermissible hindsight based on applicant's own disclosure. Even if Notenboom and Hsu were combined, the combination would still lack the element of allocating sufficient DSP resources to one of the DSP resource groups to process all of the plurality of channels. Given that claim 23 depends from claim 22, applicants submit that claim 23 is not obvious under 35 U.S.C. §103 by the reference cited by the Examiner, for at least these reasons. Claim 24 has been cancelled.

Applicants therefore submit that the rejections and objections have been overcome. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call Stephen Neal at (408) 720-8300.

If any fee is due not covered by any check submitted please charge Deposit Account No. 02-2666.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims as follows:

These are unmarked claims, including claims not amended. These claims are set forth for the convenience of the Examiner. Marked up claims are provided in an Appendix to this Amendment.

1. (Unchanged) A system, comprising:
a digital signal processing (DSP) resource manager configured to ensure DSP availability for each of a number of channels as individual ones of said channels are activated or deactivated.
2. (Unchanged) A system as in claim 1, wherein various numbers of said channels are grouped together in a carrier system.
3. (Unchanged) A system as in claim 2, wherein said carrier system is comprised of T1 lines.
4. (Unchanged) A system as in claim 3, wherein the DSP resource manager is configured to initialize each of a number of T1 lines depending on the availability of DSP resources.

5. (Unchanged) A system as in claim 1, wherein said channels comprise voice channels.
6. (Unchanged) A system as in claim 1, wherein the DSP resource manager is configured to ensure DSP availability by controlling allocation of a number of DSP resources among the activated channels.
7. (Unchanged) A system as in claim 6, wherein said DSP resources are assigned to DSP groups according to information compression requests associated with the activated channels.
8. (Unchanged) A system as in claim 7, wherein each of said DSP resources is configured to process one or more of said voice channels depending upon the compression scheme selected.
9. (Unchanged) A system as in claim 1, wherein the DSP resource manager is configured to ensure DSP availability for each of said channels by assigning a sufficient number of DSP resources to each of a number of DSP groups to process information transmitted within all activated channels.
10. (Unchanged) A system as in claim 9, wherein the number of DSP resources assigned to each of the DSP groups is recalculated each time one of the channels is activated or deactivated.

11. (Unchanged) A system as in claim 10, wherein the DSP resources are reallocated between each of the DSP groups to ensure processing of all activated channels and to maximize enhanced compression capabilities.
12. (Unchanged) A method comprising managing a digital signal processing (DSP) system to ensure DSP availability for each of a number of channels as individual ones of said channels are activated or deactivated.
13. (Unchanged) A method as in claim 12, further comprising grouping various number of said channels together in a carrier system.
14. (Unchanged) A method as in claim 13, wherein said carrier system is comprised of T1 lines.
15. (Unchanged) A method as in claim 14, wherein each of a number of T1 lines is initialized as DSP resources become available.
16. (Unchanged) A method as claimed in claim 12, wherein ensuring DSP availability comprises allocating a number of DSP resources among activated ones of the channels.
17. (Unchanged) A method as in claim 16, wherein allocation of said DSP resources to DSP groups is performed by a DSP resource manager according to information compression requests associated with the activated channels.

18. (Unchanged) A method as in claim 17, wherein configuring of each of said DSP resources to process one or more of said activated channels is dependent upon the compression scheme selected.

19. (Unchanged) A method as in claim 18, further comprising assigning a sufficient number of DSP resources to each of a number of DSP groups to process information transmitted within all activated channels.

20. (Unchanged) A method as in claim 19, further comprising recalculating the number of DSP resources assigned to each of the DSP groups is performed by the DSP resource manager each time one of the channels is activated or deactivated.

21. (Unchanged) A method as in claim 20, wherein reallocating the DSP resources between each of the DSP groups by the DSP resource manager, is performed as necessary, each time a call is activated or deactivated.

22. (Amended) A system comprising:

a plurality of digital signal processing (DSP) resources; and

a DSP resource manager configured to allocate the DSP resources among DSP resource groups according to requirements of a plurality of channels utilizing the DSP resources, allocating sufficient DSP resources to one of the DSP resource groups to process all of the plurality of channels.

23. (Unchanged) The system as claimed in claim 22 wherein the DSP resource manager allocates the DSP resources into two or more DSP resource groups.

24. (Cancelled)

25. (Amended) The system as claimed in claim ~~{24}~~ 23 wherein one of the DSP resource groups is a compression group comprised of DSP resources which compress voice and data information transmitted over the channels.

26. (Unchanged) The system as claimed in claim 25 wherein one of the DSP resource groups is a PCM group comprised of DSP resources which compress the voice and data information using pulse code modulation ("PCM").

27. (Unchanged) The system as claimed in claim 26 wherein the PCM group contains sufficient DSP resources to process all of the channels not being processed by the compression group.

28. (Unchanged) The system as claimed in claim 23 wherein each of the plurality of channels is comprised of active channels and inactive channels.

29. (Unchanged) The system as claimed in claim 28 wherein the DSP resource manager allocates sufficient DSP resources to a first DSP resource group to process all of the active channels not being processed by the remaining DSP resources.

30. (Unchanged) The system as claimed in claim 29 wherein the first DSP resource group is a PCM group comprised of DSP resources which perform pulse code modulation.
31. (Unchanged) The system as claimed in claim 30 including a compression group comprised of DSP resources which compress channels at a higher compression ratio than DSP resources within the PCM group.
32. (Unchanged) The system as claimed in claim 31 wherein the DSP resource manager reallocates the number of DSP resources required in the PCM group to process all active channels not being processed by the remaining DSP resources after one or more of the channels are inactivated or deactivated.
33. (Unchanged) The system as claimed in claim 32 wherein groups of the plurality of channels are grouped together in a carrier system.
34. (Unchanged) The system as claimed in claim 33 wherein the carrier system is comprised of T1 carriers.
35. (New) An apparatus comprising a means for managing a digital signal processing (DSP) system to ensure DSP availability for each of a number of channels as individual ones of said channels are activated or deactivated.
36. (New) An apparatus as in claim 35, further comprising a means for grouping various number of said channels together in a carrier system.

37. (New) An apparatus as in claim 36, wherein said carrier system is comprised of T1 lines.
38. (New) An apparatus as in claim 37, wherein each of a number of T1 lines is initialized as DSP resources become available.
39. (New) An apparatus as claimed in claim 35, wherein ensuring DSP availability comprises allocating a number of DSP resources among activated ones of the channels.
40. (New) An apparatus as in claim 39, wherein allocation of said DSP resources to DSP groups is performed by a DSP resource manager according to information compression requests associated with the activated channels.
41. (New) An apparatus as in claim 40, wherein configuring of each of said DSP resources to process one or more of said activated channels is dependent upon the compression scheme selected.
42. (New) An apparatus as in claim 41, further comprising a means for assigning a sufficient number of DSP resources to each of a number of DSP groups to process information transmitted within all activated channels.
43. (New) An apparatus as in claim 42, further comprising a means for recalculating the number of DSP resources assigned to each of the DSP groups is

performed by the DSP resource manager each time one of the channels is activated or deactivated.

44. (New) An apparatus as in claim 43, wherein reallocating the DSP resources between each of the DSP groups by the DSP resource manager, is performed as necessary, each time a call is activated or deactivated.